

ABSTRACT:

Voltage contrast-based apparatuses, methods and systems for detection of continuity are described for use in evaluation of conducting components of a microcircuit such as a silicon wafer-based semiconductor chip. Two beams are directed to two separate conducting, electrically floating components on the sample, and are timed and delivered to be alternating pulses. One lower energy beam elicits its target to emit secondary electrons that are detected by an electron detector to produce an image. A second high-energy beam creates a virtual ground at its target. Voltage contrast images indicate whether there is continuity between the two conducting components.